Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	289	hybridi$ near20 nanoparticle	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/27 17:44
L2	34071	435/6[ccls]	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/27 17:44
L3	164	l1 and l2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/27 17:44
L4	1107147	@rlad<"20030227"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/27 17:44
L5	112	l3 and l4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/27 17:44

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NEWS 8 DEC 23 New IPC8 SEARCH, DISPLAY, and SELECT fields in USPATFULL/ USPAT2
NEWS 9 JAN 13 IPC 8 searching in IFIPAT, IFIUDB, and IFICDB
NEWS 10 JAN 13 New IPC 8 SEARCH, DISPLAY, and SELECT enhancements added to INPADOC
NEWS 11 JAN 17 Pre-1988 INPI data added to MARPAT
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=> s (hybridi? (20a) nanoparticle#)/bi,ab 168171 HYBRIDI?/BI
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38709 NANOPARTICLE#/AB
L1 373 (HYBRIDI? (20A) NANOPARTICLE#)/BI,AB

=> l1 and (rna# or dna# or cdna# or mrna#)/bi,ab
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RNA#/BI 234351 RNA#/AB 758681
DNA#/BI 591971 DNA#/AB 194569
CDNA#/BI 152927 CDNA#/AB 284305
MRNA#/BI 249121 MRNA#/AB
L2 305 L1 AND (RNA# OR DNA# OR CDNA# OR MRNA#)/BI,AB

=> s l2 not 2006/py 73774 2006/PY
L3 291 L2 NOT 2006/PY

=> s l3 not 2005/py 1188235 2005/PY
L4 193 L3 NOT 2005/PY

=> s l4 not 2004/py 1284082 2004/PY
L5 120 L4 NOT 2004/PY

=> s l5 not 2003/py 1257963 2003/PY
L6 63 L5 NOT 2003/PY

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FILE 'CAPLUS' ENTERED AT 17:50:48 ON 27 JAN 2006
L1 373 S (HYBRIDI? (20A) NANOPARTICLE#)/BI,AB
L2 305 S L1 AND (RNA# OR DNA# OR CDNA# OR MRNA#)/BI,AB
L3 291 S L2 NOT 2006/PY

L4 193 S L3 NOT 2005/PY
L5 120 S L4 NOT 2004/PY
L6 63 S L5 NOT 2003/PY

=> d l6 1-63 bib ab

L6 ANSWER 1 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:168705 CAPLUS
DN 138:349216
TI Sensing and diagnosis
AU Maeda, Mizuo
CS Graduate School of Engineering, Kyushu University, Fukuoka, Japan
SO Supramolecular Design for Biological Applications (2002), 287-298. Editor(s): Yui, Nobuhiko. Publisher: CRC Press LLC, Boca Raton, Fla. CODEN: 69DQPD; ISBN: 0-8493-0965-4
DT Conference
LA English
AB Two types of supramol. assembling phenomena are discussed in relation to gene mutation assays: ***DNA*** -carrying colloidal nanoparticles prepd. from ***DNA*** -PNIPAAm graft copolymer through supramol. assembly; and ***DNA*** -carrying nanoparticles assembled in the presence of complementary ***DNA*** to yield visibly detectable aggregates due to crosslinking or colloidal stability change. A typical example of supramol. systems, useful for biol. sensing and diagnosis, is explained. The author proposes a novel aggregation mechanism of ***DNA*** -contg. colloidal particles, which is based on the stability decrease of colloidal particles accompanied by the duplex formation of the shell ***DNA*** with the complementary ***DNA*** . Using the particle aggregation assay, sequence- and chain length-selective ***DNA*** detection is attained.
RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:149917 CAPLUS
DN 138:215997
TI Bioconjugated nanoparticle probes for ultrasensitive ***DNA*** detection
AU Taylor, Jason Roger
CS Indiana Univ., Bloomington, IN, USA
SO (2002) 187 pp. Avail.: UMI, Order No. DA3054502 From: Diss. Abstr. Int., B 2002, 63(5), 2363
DT Dissertation
LA English
AB Unavailable

L6 ANSWER 3 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:24393 CAPLUS
DN 138:50796
TI Nanoparticle-labeled probe and uses in ***DNA*** chip for diagnosis
IN Pang, Daiwen; Wang, Yefu; Zhang, Zhiling; Cao, Junping; Cai, Ruxiu; Zheng, Guzhi
PA Wuhan Univ., Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 16 pp. CODEN: CNXXEV
DT Patent
LA Chinese
FAN.CNT 1 PATENT NO. KIND DATE APPLICATION NO. DATE ---------- ---- -------- ---------- -------
PI CN 1339609 A 20020313 CN 2001-133527 20010930
PRAI CN 2001-133527 20010930
AB The invention relates to prepn. of nanoparticle-labeled probe of ***DNA*** chip for diagnosis. The said nanoparticle-labeled probe is the 100-1,000 bp single-stranded ***RNA*** or ***DNA*** , which were labeled with Au, Ag, CdS, Fe2O3, or SiO2. The ***nanoparticle*** -labeled probe is immobilized on glass, nylon membrane or cellulose sulfate membrane and ***hybridized*** in ***DNA*** chip. The hybridization signals are detected by silver staining using Ag salt and reductant.

L6 ANSWER 4 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:861903 CAPLUS
DN 138:251030
TI Fabrication of two- and three-dimensional structures of ***nanoparticles*** using LB method and ***DNA*** ***hybridization***
AU Takahagi, Takayuki; Huang, Shujuan; Tsutsui, Gen; Sakaue, Hiroyuki; Shingubara, Shoso
CS Graduate School of Advanced Sciences of Matter, Hiroshima University, Higashi-Hiroshima, 739-8526, Japan
SO Materials Research Society Symposium Proceedings (2002), 707(Self-Assembly Processes in Materials), 87-92 CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
AB In this paper we describe fabrication methods for two types of nanostructures, two- and three-dimensional arrays of gold nanoparticles. Large-scale and high-ordered monolayers of alkanethiol-encapsulated gold particles were fabricated by using Langmuir-Blodgett (LB) method. Three-dimensional nanoparticle arrays composed of gold ***nanoparticles*** of two different sizes, which were encapsulated by complementary thiol-capped ***DNA*** oligonucleotides, were fabricated by using ***DNA*** ***hybridization*** . ***DNA*** hybridization occurred upon mixing these particles, which resulted in the assembly of three-dimensional nanostructure of gold particles. SEM observations and UV spectroscopy measurement were performed to confirm the construction of the nanostructures.
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 5 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:818318 CAPLUS
DN 138:33867
TI Electrochemical detection of ***DNA*** ***hybridization*** based on silver-enhanced gold ***nanoparticle*** label
AU Cai, Hong; Wang, Yanqing; He, Pingang; Fang, Yuzhi
CS Department of Chemistry, East China Normal University, Shanghai, 200062, Peop. Rep. China
SO Analytica Chimica Acta (2002), 469(2), 165-172 CODEN: ACACAM; ISSN: 0003-2670
PB Elsevier Science B.V.
DT Journal
LA English
AB An electrochem. detection method for analyzing sequence-specific ***DNA*** using gold nanoparticle ***DNA*** probes and subsequent signal amplification step by silver enhancement is described. The assay relies on the electrostatic adsorption of target oligonucleotides onto the sensing surface of

the glassy carbon electrode (GCE) and its ***hybridization*** to the gold ***nanoparticle*** -labeled oligonucleotides ***DNA*** probe. After silver deposition onto gold nanoparticles, binding events between probe and target were monitored by the differential pulse voltammetry (DPV) signal of the large no. of silver atoms anchored on the hybrids at the electrode surface. The signal intensity difference permits to distinguish between the match of two perfectly matched ***DNA*** strands and the near-perfect match where just one base pair was wrong. Coupled with this "nanoparticle-promoted" redn. of silver signal amplification method, the sensitivity of this electrochem. ***DNA*** biosensor has been increased by approx. two orders of magnitude and a detection limit of 50 pM of complementary oligonucleotides was obtained.
RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 6 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:818291 CAPLUS
DN 138:20108
TI Immobilization of oligonucleotides onto silica ***nanoparticles*** for ***DNA*** ***hybridization*** studies
AU Hilliard, Lisa R.; Zhao, Xiaojun; Tan, Weihong
CS Center for Research at Bio/Nano Interface, Department of Chemistry, and the McKnight Brain Institute, University of Florida, Gainesville, FL, 32611, USA
SO Analytica Chimica Acta (2002), 470(1), 51-56 CODEN: ACACAM; ISSN: 0003-2670
PB Elsevier Science B.V.
DT Journal
LA English
AB This paper describes the development of oligonucleotide-functionalized nanoparticles. We used disulfide-coupling chem. for the immobilization of oligonucleotides onto silica nanoparticles and subsequently demonstrated the properties of the resulting ***DNA*** nanoparticles. Factors influencing the immobilization and hybridization processes were examd. and optimized. The oligonucleotide-modified silica ***nanoparticles*** provide an efficient substrate for ***hybridization*** and can be used in the development of ***DNA*** biosensors and biochips.
RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 7 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:791489 CAPLUS
DN 138:34812
TI Electrophoretic and Structural Studies of ***DNA*** -Directed Au Nanoparticle Groupings
AU Zanchet, Daniela; Micheel, Christine M.; Parak, Wolfgang J.; Gerion, Daniele; Williams, Shara C.; Alivisatos, A. Paul
CS Department of Chemistry, University of California, Berkeley, CA, 94720, USA
SO Journal of Physical Chemistry B (2002), 106(45), 11758-11763 CODEN: JPCBFK; ISSN: 1520-6106
PB American Chemical Society
DT Journal
LA English
AB Discrete Au nanoparticle/ ***DNA*** conjugates have been isolated by electrophoresis and used to form small groupings of particles, such as dimers and trimers. The use of purified conjugates leads to a higher yield of the target structure, and it has allowed us better control and understanding of the system. Newly accessible questions, such as the electrophoretic mobility of nanoparticle/ ***DNA*** hybrids and the crit. role of particle surface charge on mobility, have been studied. Detailed characterization by transmission electron microscopy (TEM) has now been done because of the higher quality of the samples. A computer program to generate pair distribution functions from TEM images was developed, pointing out the dependence of interparticle distance with ***DNA*** length on dimers of particles.
RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 8 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:691797 CAPLUS
DN 138:83874
TI Novel gene diagnosis using ***DNA*** conjugates
AU Takarada, Tohru; Maeda, Mizuo
CS Japan
SO Kino Zairyo (2002), 22(8), 13-21 CODEN: KIZAEP; ISSN: 0286-4835
PB Shi Emu Shi Shuppan
DT Journal; General Review
LA Japanese
AB A review. The detection of gene mutation such as SNP (single nucleotide polymorphism) based on ***DNA*** ***hybridization*** using colloidal ***nanoparticles*** bearing specific ***DNA*** probes. The prepn. of the graft copolymer (***DNA*** -poly-N- isoprorylacrylamide conjugate) and the use of the particles in the ***DNA*** hybridization anal. by turbidimetry based on aggregation of the particles were discussed. The physico-chem. principles underlying the aggregation of the particles triggered by dsDNA formation and the mechanisms of detection of the SNP by the degree of particle aggregation were discussed. The SNP anal. using the microelectrophoresis-equipped chip system and the fabrication of the ***DNA*** -conjugated affinity capillary matrix were also discussed.

L6 ANSWER 9 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:689752 CAPLUS
DN 138:33848
TI Colorimetric SNP analysis using oligonucleotide-modified nanoparticles
AU Ihara, Toshihiro; Chikaura, Yasushi; Tanaka, Shojiro; Jyo, Akinori
CS Department of Applied Chemistry and Biochemistry, Faculty of Engineering, Kumamoto University, Kumamoto, 860-8555, Japan
SO Chemical Communications (Cambridge, United Kingdom) (2002), (18), 2152-2153 CODEN: CHCOFS; ISSN: 1359-7345
PB Royal Society of Chemistry
DT Journal
LA English
AB A point mutation in the p53 gene has been detected by means of fluorescence microscopy and fluorescent resonance energy transfer (FRET) through sequence selective aggregation of ***DNA*** -modified nanoparticles, in which fluorescent dyes were impregnated.
RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 10 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:684905 CAPLUS
DN 138:35578

TI Electrochemical stripping detection of ***DNA*** ***hybridization*** based on cadmium sulfide ***nanoparticle*** tags
AU Wang, Joseph; Liu, Guodong; Polsky, Ronen; Merkoci, Arben
CS Department of Chemistry and Biochemistry, New Mexico State University, Las Cruces, NM, 88003, USA
SO Electrochemistry Communications (2002), 4(9), 722-726
CODEN: ECCMF9; ISSN: 1388-2481
PB Elsevier Science B.V.
DT Journal
LA English
AB We report on the detection of ***DNA*** ***hybridization*** in connection to cadmium sulfide ***nanoparticle*** tracers and electrochem. stripping measurements of the cadmium. A ***nanoparticle*** -promoted cadmium pptn. is used to enlarge the ***nanoparticle*** tag and amplify the stripping ***DNA*** ***hybridization*** signal. In addn. to measurements of the dissolved cadmium ion we demonstrate solid-state measurements following a magnetic' collection of the magnetic-bead/ ***DNA*** -hybrid/CdS-tracer assembly onto a thick-film electrode transducer. The new protocol combines the amplification features of nanoparticle/polynucleotides assemblies and highly sensitive stripping potentiometric detection of cadmium, with an effective magnetic isolation of the duplex. The low detection limit (100 fmol) is coupled to good reproducibility (RSD=6%). Prospects for using binary inorg. colloids for multi-target detection are discussed.
RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 11 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:649353 CAPLUS
DN 137:347094
TI Development, characterization, and optimization of a ***nanoparticle*** -based ***dna*** ***hybridization*** detection strategy
AU Sauthier, Marc Louis
CS North Carolina State Univ., Raleigh, NC, USA
SO (2001) 153 pp. Avail.: UMI, Order No. DA3027846 From: Diss. Abstr. Int., B 2002, 62(10), 4519
DT Dissertation
LA English
AB Unavailable

L6 ANSWER 12 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:638197 CAPLUS
DN 137:180749
TI Detection of genetic polymorphisms using generic molecular beacon probes labeled with fluoresce dye-conjugated metallic or semiconductor nanoparticles
IN Phillips, Vince; Watson, Andrew R.; Wong, Edith
PA USA
SO U.S. Pat. Appl. Publ., 27 pp. CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1 PATENT NO. KIND DATE APPLICATION NO. DATE
PI US 2002115082 A1 20020822 US 2001-945379 20010831
PRAI US 2000-230186P P 20000901
AB Methods, compns. and articles of manuf. for assaying a sample for an amplification product from a target polynucleotide are provided. An amplification reaction is used to produce the amplification product from the target polynucleotide so that it can be used to indirectly assay the sample for the target polynucleotide. A sample suspected of contg. the target polynucleotide is contacted with first and second primers to amplify the target polynucleotide; the first primer comprises a tag sequence, the complement of which is formed on the opposite strand during amplification and is referred to as a capture sequence. That opposite strand is referred to as a second primer extension product or an amplification product. A generic probe polynucleotide is provided that is a mol. beacon and can bind to the capture sequence to form an amplification product detection complex. The mol. beacon probes can be labeled with fluoresce dye or metallic or semiconductor nanoparticles to increase the sensibility and specificity in the detection and enable multiplexing. Methods of detecting the amplification product detection complex thus produced are also provided, as are amplification product assay arrays, along with methods of forming the same. The methods are particularly useful in multiplex settings where a plurality of target polynucleotides are to be assayed. Kits comprising reagents for performing such methods are also provided.

L6 ANSWER 13 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:614995 CAPLUS
TI Photopatterning of ***DNA*** for integration with microfabricated structures
AU Pathak, Srikant; Dentinger, Paul M.
CS Materials Chemistry, Sandia National Laboratories, Livermore, CA, 94551-0969, USA
SO Abstracts of Papers, 224th ACS National Meeting, Boston, MA, United States, August 18-22, 2002 (2002), COLL-006 Publisher: American Chemical Society, Washington, D. C. CODEN: 69CZPZ
DT Conference; Meeting Abstract
LA English
AB Photopatterning of ***DNA*** on surfaces has been successfully used for assay development and a variety of research purposes. In this paper we show a facile method of patterning ***DNA*** with a com. proximity aligner and show micron-scale resoln. This method addnl. allows for alignment of patterned ***DNA*** to previous microfabrication steps. Silicon wafers were modified with monolayers of various silanes coupling agents. A photoacid generating polymer was then applied to the wafers and exposed through a Cr/Au mask. Several chem. strategies were then used to pattern the modified Si wafers using acid catalyzed coupling chem. The polymer is removed from the wafer and oligonucleotides are subsequently coupled to the surface. The most successful oligo patterning resulted from reacting a perfluorinated glycidyl ether to exposed areas of an epoxypropyl trimethoxysilane treated surface. The exposed areas become highly hydrophobic with reaction of the perfluorinted mol. to the surface. The entire wafer is then exposed to 5' aminated, 20 base long oligoucleotides for oligonucleotide attachment to the unexposed regions. The resulting ***DNA*** patterns were then studied for their binding efficiency vis-a-vis ***hybridization*** with a complementary strand labeled with (a) fluorescent dye; and (b) 20 nm gold ***nanoparticles*** , and c) 20 nm gold particles followed by silver amplification. Stability as well as specificity of patterned ***DNA*** prepd. this way has been assessed in a no. of solvent, temp. and chem. coupling conditions. Micron-scale patterns along with very little -non-specific' interaction of complementary ***DNA*** as obsd. in our method allows one to use such hybrid approach towards assembly of useful oligonucleotide micro and nano- devices.

L6 ANSWER 14 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:604378 CAPLUS
DN 138:67154
TI SNPs analysis using ***DNA*** -modified nanoparticles
AU Ihara, Toshihiro
CS Department of Applied Chemistry and Biochemistry, Faculty of Engineering, Kumamoto University, Kumamoto, 860-8555, Japan
SO Bio Industry (2002), 19(8), 27-35 CODEN: BIINEG; ISSN: 0910-6545
PB Shi Emu Shi Shuppan
DT Journal; General Review
LA Japanese
AB A review. The use of various nanoparticles with immobilized ***DNA*** mols. for SNP (single nucleotide polymorphism) anal. was discussed. The phase-change in surface plasmon polariton from the ***DNA*** -immobilized gold particles upon aggregation was utilized to monitor the ***DNA*** ***hybridization*** took place on the ***nanoparticles*** . Detection methods of ***DNA*** -hybridization by fluorometry or FRET-anal. were also discussed regarding their tech. principles based on avidin-biotin interaction and energy-transfer took place on the nanoparticles such as nanosphere. The actual example of exptl. results from a FRET SNP anal. for the p53 gene typing was presented.

L6 ANSWER 15 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:602860 CAPLUS
DN 137:266492
TI Fabrication of two- and three-dimensional structures of ***nanoparticles*** using LB method and ***DNA*** ***hybridization***
AU Takahagi, Takayuki; Huang, Shujuan; Tsutsui, Gen; Sakaue, Hiroyuki; Shingubara, Shoso
CS Graduate School of Advanced Sciences of Matter, Hiroshima University, Higashi-Hiroshima, 739-8526, Japan
SO Materials Research Society Symposium Proceedings (2002), 704(Nanoparticulate Materials), 47-52 CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
AB We describe fabrication methods for 2 types of nanostructures, 2- and 3D arrays of Au nanoparticles. Large-scale and high-ordered monolayers of alkanethiol-encapsulated Au particles were fabricated by Langmuir-Blodgett (LB) method. Three-dimensional nanoparticle arrays composed of Au ***nanoparticles*** of 2 different sizes, which were encapsulated by complementary thiol-capped ***DNA*** oligonucleotides, were fabricated by ***DNA*** ***hybridization*** . ***DNA*** hybridization occurred upon mixing these particles, which resulted in the assembly of 3D nanostructure of Au particles. SEM observations and UV spectroscopy measurement were performed to confirm the construction of the nanostructures.
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 16 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:552850 CAPLUS
DN 137:213057
TI Silver-enhanced imaging of ***DNA*** hybridization at ***DNA*** microarrays with scanning electrochemical microscopy
AU Wang, Jun; Song, Fayi; Zhou, Feimeng
CS Department of Chemistry and Biochemistry, California State University, Los Angeles, CA, 90032, USA
SO Langmuir (2002), 18(17), 6653-6658 CODEN: LANGD5; ISSN: 0743-7463
PB American Chemical Society
DT Journal
LA English
AB The use of scanning electrochem. microscopy (SECM) to image oligodeoxynucleotide (ODN) hybridization at spots on microarrays has been demonstrated. ODN probes at a microarray surface were hybridized with a biotinylated target, and the regions where sequence-specific ***hybridization*** had occurred were developed by the silver staining process (adsorption of streptavidin-gold ***nanoparticles*** followed by silver particle deposition). As a consequence of the staining process, the surface cond. of the region where hybridization had taken place increased. Such an increase in cond. was sensitively detected by a SECM tip. The SECM detection level for a 17mer target was found to be at 30 amol per spot (or 3.0 fmol per slide). These values compare well with those from other detection methods (e.g., fluorescence and colorimetric detections). Coupled with the alteration of the hybridization temp., sequence-specific (single-base mismatch) ***DNA*** anal. can be accomplished. A reasonable sample throughput (imaging an area of 0.24 cm .times. 0.24 cm in about 38 min at a tip scanning speed of 50 .mu.m/s) was obtained.
RE.CNT 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 17 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:479508 CAPLUS
DN 137:197738
TI Sensitivity enhancement of ***DNA*** sensors by nanogold surface modification
AU Liu, Tao; Tang, Ji'an; Jiang, Long
CS Laboratory of Colloid and Interface Science, Chinese Academy of Science, Institute of Chemistry, Center for Molecular Science, Beijing, 100080, Peop. Rep. China
SO Biochemical and Biophysical Research Communications (2002), 295(1), 14-16 CODEN: BBRCA9; ISSN: 0006-291X
PB Elsevier Science
DT Journal
LA English
AB A novel amplified microgravimetric gene sensing system was developed using quartz crystal microbalance modified by gold ***nanoparticles*** anchored on its 1,6-hexanedithiol modified gold electrode surface, and ultrasensitive detection of ***DNA*** ***hybridization*** was accomplished at the level of at least 2.times.10-16 M.
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 18 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:429752 CAPLUS
DN 137:75410
TI Particle size effect of the ***DNA*** sensor amplified with gold nanoparticles
AU Liu, Tao; Tang, Ji'an; Zhao, Hongqiu; Deng, Yongpei; Jiang, Long
CS Laboratory of Colloid and Interface Science, Center for Molecular Science, Institute of Chemistry, Chinese Academy of Science, Beijing, 100080, Peop. Rep. China
SO Langmuir (2002), 18(14), 5624-5626 CODEN: LANGD5; ISSN: 0743-7463

PB American Chemical Society
DT Journal
LA English
AB In this paper, nanoparticles with diams. ranging from 12 to 65 nm were used as amplifiers of a ***DNA*** sensor on a QCM device and the amplification efficiency was detd. Furthermore, gold ***nanoparticles*** with a certain size were immobilized on a modified mica slide by (3-mercaptopropyl)trimethoxysilane, and ***DNA*** ***hybridization*** was carried out on the surface. At. force microscopy (AFM) detection for the first time was used to intuitively observe the obvious surface changes at the mol. level during the hybridizing process.
RE.CNT 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 19 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:409358 CAPLUS
DN 137:89013
TI ***Hybridization*** and Enzymatic Extension of Au ***Nanoparticle*** -Bound Oligonucleotides
AU Pena, Sheila R. Nicewarner; Raina, Surabhi; Goodrich, Glenn P.; Fedoroff, Nina V.; Keating, Christine D.
CS Department of Chemistry and Life Sciences Consortium, The Pennsylvania State University, University Park, PA, 16802, USA
SO Journal of the American Chemical Society (2002), 124(25), 7314-7323 CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society
DT Journal
LA English
AB We have investigated the impact of steric effects on the hybridization and enzymic extension of oligonucleotides bound to 12-nm colloidal Au particles. In these expts., a ***nanoparticle*** -bound 12-mer sequence is ***hybridized*** either to its soln. phase 12-mer complement or to an 88-mer template sequence. The particle-bound oligonucleotide serves as a primer for enzymic extension reactions, in which covalent incorporation of nucleotides to form the complement of the template is achieved by the action of ***DNA*** polymerase. Primers were attached via-C6H12SH, -C12H24SH, and -TTACAATC6H12SH linkers attached at the 5' end. Primer coverage on the nanoparticles was varied by diln. with 5'HSC6H12AAA AAA3'. Hybridization efficiencies were detd. as a function of linker length, primer coverage, complement length (12-mer vs 88-mer), and primer:complement concn. ratio. In all cases, hybridization for the 88-mer was less efficient than for the 12-mer. Low primer surface coverages, greater particle-primer sepn., and higher primer:complement ratios led to optimal hybridization. Hybridization efficiencies as high as 98% and 75% were obsd. for the 12-mer and 88-mer, resp. Enzymic extension of particle-bound primers was obsd. under all conditions tested; however, the efficiency of the reaction was strongly affected by linker length and primer coverage. Extension of primers attached by the longest linker was as efficient as the soln.-phase reaction.
RE.CNT 67 THERE ARE 67 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 20 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:405606 CAPLUS
DN 138:148217
TI Recognition of ***DNA*** sequence and chain length by using ***DNA*** -linked nanoparticle
AU Tang, Zhonglan; Mori, Takeshi; Takarada, Tohru; Maeda, Mizuo
CS Department of Applied Chemistry, Graduate School of Engineering, Kyushu University, Fukuoka, 812-8581, Japan
SO Analytical Sciences (2001), 17(Suppl.), a357-a359 CODEN: ANSCEN; ISSN: 0910-6340
PB Japan Society for Analytical Chemistry
DT Journal; (computer optical disk)
LA English
AB We have studied the assembly of amphiphilic copolymer between oligonucleotide (ODN) as hydrophilic part and thermo-responsive polymer poly(N-isopropylacrylamide) (polyNIPAAm) as hydrophobic part. The copolymer formed colloidal nanoparticles, which aggregated depending on the sequence and chain length of coexisting ***DNA*** . The ***DNA*** -linked nanoparticle may be applied to an oligonucleotides discrimination system for gene diagnosis.
RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 21 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:403338 CAPLUS
DN 137:258035
TI An electrochemical ***DNA*** ***hybridization*** detection assay based on a silver ***nanoparticle*** label
AU Cai, Hong; Xu, Ying; Zhu, Ningning; He, Pingang; Fang, Yuzhi
CS Department of Chemistry, East China Normal University, Shanghai, 200062, Peop. Rep. China
SO Analyst (Cambridge, United Kingdom) (2002), 127(6), 803-808 CODEN: ANALAO; ISSN: 0003-2654
PB Royal Society of Chemistry
DT Journal
LA English
AB A novel, sensitive electrochem. ***DNA*** ***hybridization*** detection assay, using silver ***nanoparticles*** as the oligonucleotide labeling tag, is described. The assay relies on the ***hybridization*** of the target ***DNA*** with the silver ***nanoparticle*** -oligonucleotide ***DNA*** probe, followed by the release of the silver metal atoms anchored on the hybrids by oxidative metal dissoln. and the indirect detn. of the solubilized AgI ions by anodic stripping voltammetry (ASV) at a carbon fiber ultramicroelectrode. The influence of the relevant exptl. variables, including the surface coverage of the target oligonucleotide, the duration of the silver dissoln. steps and the parameters of the electrochem. stripping measurement of the silver(i) ions, is examd. and optimized. The combination of the remarkable sensitivity of the stripping metal anal. at the microelectrode with the large no. of silver(i) ions released from each ***DNA*** hybrid allows detection at levels as low as 0.5 pmol L-1 of the target oligonucleotides.
RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 22 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:392348 CAPLUS
DN 137:164287
TI Sorting Fluorescent Nanocrystals with ***DNA***
AU Gerion, Daniele; Parak, Wolfgang J.; Williams, Shara C.; Zanchet, Daniela; Micheel, Christine M.; Alivisatos, A. Paul
CS Department of Chemistry, University of California, Berkeley, CA, 94720, USA
SO Journal of the American Chemical Society (2002), 124(24), 7070-7074 CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society

DT Journal
LA English
AB Semiconductor nanocrystals with narrow and tunable fluorescence are covalently linked to oligonucleotides. These biocompounds retain the properties of both nanocrystals and ***DNA*** . Therefore, different sequences of ***DNA*** can be coded with nanocrystals and still preserve their ability to hybridize to their complements. We report the case where four different sequences of ***DNA*** are linked to four nanocrystal samples having different colors of emission in the range of 530-640 nm. When the ***DNA*** -nanocrystal conjugates are mixed together, it is possible to sort each type of ***nanoparticle*** by using ***hybridization*** on a defined micrometer-size surface contg. the complementary oligonucleotide. Detection of sorting requires only a single excitation source and an epifluorescence microscope. The possibility of directing fluorescent nanocrystals toward specific biol. targets and detecting them, combined with their superior photostability compared to org. dyes, opens the way to improved biolabeling expts., such as gene mapping on a nanometer scale or multicolor microarray anal.
RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 23 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:317810 CAPLUS
DN 137:140724
TI Multiple thiol-anchor capped ***DNA*** -gold nanoparticle conjugates
AU Li, Zhi; Jin, Rongchao; Mirkin, Chad A.; Letsinger, Robert L.
CS Department of Chemistry and Institute for Nanotechnology, Northwestern University, Evanston, IL, 60208, USA
SO Nucleic Acids Research (2002), 30(7), 1558-1562 CODEN: NARHAD; ISSN: 0305-1048
PB Oxford University Press
DT Journal
LA English
OS CASREACT 137:140724
AB We report the synthesis of a novel trithiol-capped oligodeoxyribonucleotide and gold nanoparticle conjugates prepd. from it. These ***DNA*** -gold ***nanoparticle*** conjugates exhibit substantially higher stability than analogs prepd. from monothiol and cyclic disulfide-capped oligodeoxyribonucleotides, but comparable ***hybridization*** properties. A quant. anal. of their stability under a range of conditions is provided. Significantly, this novel trithiol oligodeoxyribonucleotide can be used to stabilize particles >30 nm in diam., which are essential for many diagnostic applications.
RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 24 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:294945 CAPLUS
DN 138:35445
TI Gold nanoparticles as novel label for ***DNA*** diagnostics
AU Csaki, Andrea; Moller, Robert; Fritzsche, Wolfgang
CS Molecular Nanotechnology Group, Institute for Physical High Technology, Jena, 07702, Germany
SO Expert Review of Molecular Diagnostics (2002), 2(2), 187-193 CODEN: ERMDCW; ISSN: 1473-7159
PB Future Drugs Ltd.
DT Journal; General Review
LA English
AB A review. The growing interest in ***DNA*** diagnostics, esp. in combination with the need for highly-paralleled and miniaturized hybridization assays, is today addressed by fluorescence ***DNA*** chips. Fluorescence detection is approved and highly developed, however, it has also problematic aspects, e.g., the low stability of the dyes, the influence of the physicochem. environment onto the signal intensity and the expensive set-up for detection. A novel detection scheme based on metal nanoparticles was proposed to overcome these problems and is discussed in this review.
RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 25 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:293191 CAPLUS
DN 137:289398
TI Gene diagnosis and nanotechnology
AU Tang, Zhonglan; Maeda, Mizuo
CS Graduate School of Engineering, Kyushu University, Japan
SO Bio Industry (2002), 19(3), 16-22 CODEN: BIINEG; ISSN: 0910-6545
PB Shi Emu Shi Shuppan
DT Journal; General Review
LA Japanese
AB A review. The SNP anal. by ***DNA*** ***hybridization*** using the allele-specific ***DNA*** probe immobilized on gold ***nanoparticles*** was described. Spectrophotometric detection of ***nanoparticle*** aggregation upon ***DNA*** ***hybridization*** and SNP detection based on the difference in phase transfer process of the colloidal particles between the matched and the mismatched ***DNA*** pair combination were described. Detailed examn. of the system set-ups (optimum particle concn., temp., salt concn., etc.) that had been conducted for sensing slight difference in m.ps. between wild and mutant types was presented. Sensitive detection system using probe-immobilized cantilever sensors to detect phys. stress upon hybridization was also described as another example of nanotechnol. approach.

L6 ANSWER 26 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:234786 CAPLUS
DN 136:242425
TI Magnetically-induced solid-state electrochemical detection of ***DNA*** hybridization
AU Wang, Joseph; Xu, Danke; Polsky, Ronen
CS Department of Chemistry and Biochemistry, New Mexico State University, Las Cruces, NM, 88003, USA
SO Journal of the American Chemical Society (2002), 124(16), 4208-4209 CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society
DT Journal
LA English
AB A magnetic triggering of a solid-state elec. transduction of ***DNA*** hybridization is described. Positioning of an external magnet below the thick-film electrode attracts the ***DNA*** /particle network and enables the solid-state electrochem. stripping detection of the silver tracer. TEM imaging indicates that the ***hybridization*** event results in a three-dimensional aggregate structure in which duplex segments link the metal ***nanoparticles*** and magnetic spheres, and that most of this assembly is covered with the silver ppt. This leads to a direct contact of the metal tag with the surface (in connection to the magnetic collection) and enables the solid-state electrochem. transduction (without prior dissoln. and subsequent electrodeposition of the metal), using oxidative

dissoln. of the silver tracer. No such aggregates (and hence magnetic "collection") are obsd. in the presence of noncomplementary ***DNA*** , i.e., without the linking hybrid. The new method couples high sensitivity of silver-amplified assays with effective discrimination against excess of closely related nucleotide sequences (including single-base imperfections). Such direct elec. detection of ***DNA*** /metal-particle assemblies can bring new capabilities to the detection of ***DNA*** hybridization, and could be applied to other bioaffinity assays.
RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 27 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:212207 CAPLUS
DN 136:382462
TI Bio-barcodes based on oligonucleotide-modified nanoparticles
AU Nam, Jwa-Min; Park, So-Jung; Mirkin, Chad A.
CS Department of Chemistry and Institute for Nanotechnology, Northwestern University, Evanston, IL, 60208, USA
SO Journal of the American Chemical Society (2002), 124(15), 3820-3821 CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society
DT Journal
LA English
AB By utilizing oligonucleotide-modified Au nanoparticles encoded with sequences that act as biobarcodes, one can screen for multiple target polyvalent proteins simultaneously in one soln. This novel concept was demonstrated with two types of detection formats, a homogeneous assay and one based on oligonucleotide microarrays. With such an approach, one can prep. an extraordinarily large no. of barcodes from synthetically accessible oligonucleotides (e.g., a 12-mer sequence offers 412 possible barcodes).
RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 28 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:188392 CAPLUS
TI Surface effect control: improve the ***hybridization*** efficiency of the immobilized molecular beacon and other ***DNA*** probes on ***nanoparticles***
AU Li, Jianwei J.; Tan, Weihong
CS Department of Chemistry, University of Florida, Gainesville, FL, 32611, USA
SO Abstracts of Papers, 223rd ACS National Meeting, Orlando, FL, United States, April 7-11, 2002 (2002), COLL-474 Publisher: American Chemical Society, Washington, D. C. CODEN: 69CKQP
DT Conference; Meeting Abstract
LA English
AB There is growing interest in the exploitation of high-throughput solid-phase-based assays for diagnosis, new drugs development and biomedical research. Techniques using solid support-bound oligonucleotides as probes are finding a wide range of applications. Of all of these applications, hybridization of tethered oligonucleotide probes with nucleic acid targets is the central event, and high hybridization efficiency holds the key for sensitive, reproducible and reliable assays. Whatever solid supports is chosen, a common problem to be faced is that the solid support always tends to constrain the ways in which the bound oligonucleotide probes can interact with target mols. Effort has been made to mitigate the influence of solid support. In this paper, we have developed a novel approach to control surface effect to improve ***DNA*** ***hybridization*** efficiency on ***nanoparticle*** surfaces. This approach significantly increases the hybridization speed and yield, and should be generally useful for all solid-phase-based ***DNA*** assays.

L6 ANSWER 29 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:158929 CAPLUS
DN 137:58213
TI Array-based electrical detection of ***DNA*** with nanoparticle probes
AU Park, So-Jung; Taton, T. Andrew; Mirkint, Chad A.
CS Department of Chemistry and Institute for Nanotech- nology, Northwestern University, Evanston, IL, 60208, USA
SO Science (Washington, DC, United States) (2002), 295(5559), 1503-1506 CODEN: SCIEAS; ISSN: 0036-8075
PB American Association for the Advancement of Science
DT Journal
LA English
AB A ***DNA*** array detection method is reported in which the binding of oligonucleotides functionalized with gold nanoparticles leads to cond. changes assocd. with target-probe binding events. The binding events localize gold nanoparticles in an electrode gap; silver deposition facilitated by these nanoparticles bridges the gap and leads to readily measurable cond. changes. An unusual salt concn.-dependent ***hybridization*** behavior assocd. with these ***nanoparticle*** probes was exploited to achieve selectivity without a thermal-stringency wash. Using this method, we have detected target ***DNA*** at concns. as low as 500 femtomolar with a point mutation selectivity factor of .apprx.100,000:1.
RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 30 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:151845 CAPLUS
DN 136:275546
TI ***DNA*** -based magnetic nanoparticle assembly acts as a magnetic relaxation nanoswitch allowing screening of ***DNA*** -cleaving agents
AU Perez, J. Manuel; O'Loughin, Terence; Simeone, F. Joseph; Weissleder, Ralph; Josephson, Lee
CS MGH-Center for Molecular Imaging Research, Harvard Medical School, Charlestown, MA, 02129, USA
SO Journal of the American Chemical Society (2002), 124(12), 2856-2857 CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society
DT Journal
LA English
AB Monodisperse magnetic nanoparticles conjugated with complementary oligonucleotide sequences self-assemble into stable magnetic nanoassemblies resulting in a decrease of the spin-spin relaxation times (T2) of neighboring water protons. When these nanoassemblies are treated with a ***DNA*** cleaving agent, the nanoparticles become dispersed, switching the T2 of the soln. back to original values. These qualities render the developed nanoparticles and their nanoassemblies as magnetic relaxation switches capable of screening for ***DNA*** -cleaving compds. by magnetic resonance methods such as MRI and NMR.

L6 ANSWER 31 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:106225 CAPLUS
DN 136:259512

TI ***Nanoparticle*** Layers Assembled through ***DNA*** ***Hybridization*** : Characterization and Optimization
AU Sauthier, Marc L.; Carroll, R. Lloyd; Gorman, Christopher B.; Franzen, Stefan
CS Department of Chemistry, North Carolina State University, Raleigh, NC, 27695, USA
SO Langmuir (2002), 18(5), 1825-1830 CODEN: LANGD5; ISSN: 0743-7463
PB American Chemical Society
DT Journal
LA English
AB The ***hybridization*** of ***nanoparticle*** -labeled ***DNA*** targets to surface-attached ***DNA*** probes has been investigated. Scanning tunneling microscopy (STM) and Raman and Fourier transform IR (FTIR) spectroscopy were used to elucidate surface morphol., coverage, and the presence of aggregates. The factors that affect surface coverage, such as probe d., labeled target concn., and particle size, were systematically investigated by STM in order to det. the best set of exptl. conditions allowing the formation of dense monolayers with a minimal no. of surface defects for both 5(.+-.1) nm and 10(.+-.2) nm gold ***nanoparticle*** labels on the target strand. Grazing-angle FTIR spectroscopy demonstrates that ***DNA*** is largely oriented once the labeled targets ***hybridized*** to the probes. Raman microscopy was used to probe the surface for the presence of large aggregates that would give rise to large scattering signals. Both STM and optical expts. provide evidence that dense surface layers can be formed without extensive aggregation. Nonselective binding was shown to be a function of the target concn. and nanoparticle size. Propensity for both aggregation and nonspecific binding is greater for 10(.+-.2) nm than for 5(.+-.1) nm gold nanoparticles.
RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 32 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:922058 CAPLUS
DN 136:131164
TI Immobilization of gold ***nanoparticles*** on solid supports utilizing ***DNA*** ***hybridization***
AU Peschel, S.; Ceyhan, B.; Niemeyer, C. M.; Gao, S.; Chi, L.; Simon, U.
CS Institut fur Anorganische Chemie, RWTH Aachen, Aachen, 52056, Germany
SO Materials Science & Engineering, C: Biomimetic and Supramolecular Systems (2002), C19(1-2), 47-50 CODEN: MSCEEE; ISSN: 0928-4931
PB Elsevier Science B.V.
DT Journal
LA English
AB Self-organization of colloidal metal nanoparticles into micro- and nanostructured assemblies is currently of tremendous interest promising to find new size- and structure-dependent phys. properties. Owing to its unique recognition capabilities and physicochem. stability, ***DNA*** can be used as a mol. linker for gold nanoparticles and is a promising construction material for their precise spatial positioning. Due to the enormous specificity of nucleic acid hybridization, the site-specific immobilization of ***DNA*** -functionalized gold colloids (1-40 nm) to solid supports, previously functionalized with a complementary ***DNA*** array, allows the fabrication of novel nanostructured surface architectures. Scanning force microscopy (SFM), used to characterize the intermediate steps of the ***DNA*** -directed immobilization (DDI) on a gold substrate, provides initial insight into the specificity and efficiency of this technique.
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 33 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:837901 CAPLUS
DN 136:65781
TI The percolation transition in the ***DNA*** -gold nanoparticle system
AU Kiang, Ching-Hwa; Ramos, Rona
CS Dep. Physics and Astronomy, Univ. California, Los Angeles, CA, 90095-1547, USA
SO Los Alamos National Laboratory, Preprint Archive, Physics (2001) 1-4, arXiv:physics/0111002, 1 Nov 2001 CODEN: LNPHF9
URL: http://xxx.lanl.gov/pdf/physics/0111002
PB Los Alamos National Laboratory
DT Preprint
LA English
AB Melting and ***hybridization*** of ***DNA*** -capped gold ***nanoparticle*** networks are investigated with optical absorption spectroscopy and TEM. Single-stranded, 12-base ***DNA*** -capped gold nanoparticles are linked with complementary, single-stranded, 24-base linker ***DNA*** to form particle networks. Compared to free ***DNA*** , a sharp melting transition is seen in these networked ***DNA*** -nanoparticle systems. The sharpness is explained by percolation transition phenomena.
RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 34 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:783614 CAPLUS
DN 136:115014
TI Formation of ***DNA*** -carrying colloidal particle from poly(N-isopropylacrylamide)-graft- ***DNA*** copolymer and its assembly through hybridization
AU Mori, Takeshi; Maeda, Mizuo
CS Department of Applied Chemistry, Graduate School of Engineering, Kyushu University, Fukuoka, 812-8581, Japan
SO Polymer Journal (Tokyo, Japan) (2001), 33(10), 830-833 CODEN: POLJB8; ISSN: 0032-3896
PB Society of Polymer Science, Japan
DT Journal
LA English
AB A one-step prepn. of ***DNA*** -carrying colloidal nanoparticle through the self-organization of copolymer, composed of poly(N- isopropylacrylamide) (PNIPPAAm) main chain and ***DNA*** graft chain, is described. The narrowly distributed ***DNA*** -carrying colloidal particles are easily prepd. from PNIPPAAm-graft- ***DNA*** by heating. The particle surface ***DNA*** recognizes the complementary crosslinking ***DNA*** so that the particle assembly is formed. This particle would be applicable for the turbidimetric ***DNA*** detection.
RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 35 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:745088 CAPLUS
DN 135:267870
TI Metal ***nanoparticle*** -based electrochemical stripping potentiometric detection of ***DNA*** ***hybridization***

AU Wang, Joseph; Xu, Danke; Kawde, Abdel-Nasser; Polsky, Ronen
CS Department of Chemistry and Biochemistry, New Mexico State University, Las Cruces, NM, 88003, USA
SO Analytical Chemistry (2001), 73(22), 5576-5581 CODEN: ANCHAM; ISSN: 0003-2700
PB American Chemical Society
DT Journal
LA English
AB A new ***nanoparticle*** -based elec. detection of ***DNA*** ***hybridization*** , based on electrochem. stripping detection of the colloidal gold tag, is described. In this protocol, the ***hybridization*** of a target oligonucleotide to magnetic bead-linked oligonucleotide probes is followed by binding of the streptavidin-coated metal ***nanoparticles*** to the captured ***DNA*** , dissoln. of the nanometer-sized gold tag, and potentiometric stripping measurements of the dissolved metal tag at single-use thick-film carbon electrodes. An advanced magnetic processing technique is used to isolate the ***DNA*** duplex and to provide low-vol. mixing. The influence of relevant exptl. variables, including the amts. of the gold ***nanoparticles*** and the magnetic beads, the duration of the ***hybridization*** and gold dissoln. steps, and the parameters of the potentiometric stripping operation upon the hybridization signal, is examd. and optimized. Transmission electron microscopy micrographs indicate that the ***hybridization*** event leads to the bridging of the gold ***nanoparticles*** to the magnetic beads. Further signal amplification, and lowering of the detection limits to the nanomolar and picomolar domains, are achieved by pptg. gold or silver, resp., onto the colloidal gold label. The new electrochem. stripping metallogenomagnetic protocol couples the inherent signal amplification of stripping metal anal. with discrimination against nonhybridized ***DNA*** , the use of microliter sample vols., and disposable transducers and, hence, offers great promise for decentralized genetic testing.
RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 36 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:685101 CAPLUS
DN 136:319894
TI ***Nanoparticle*** -amplified surface plasmon resonance for detection of ***DNA*** ***hybridization***
AU Goodrich, Glenn P.; Nicewarner, Sheila R.; He, Lin; Natan, Michael J.; Keating, Christine D.
CS The Pennsylvania State University, University Park, PA, 16802, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (2001), 4258(Nanoparticles and Nanostructured Surfaces: Novel Reporters with Biological Applications), 80-85 CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB In recent years there has been a great deal of interest in the measurement of ***DNA*** hybridization at surfaces. Surface-confined ***DNA*** hybridization has been used to monitor gene expression, to detect the presence of a particular ***DNA*** sequence and det. single nucleotide polymorphisms (SNPs). ***DNA*** microarrays, which can contain thousands of discrete ***DNA*** sequences on a single surface, have become widely used for hybridization studies. While a powerful technique, this technol. is limited by the stability of the fluorescent dyes used to label the ***DNA*** , and the need to perform measurements ex-situ to reduce the fluorescence background. In this report, we describe the use of colloid-amplified surface plasmon resonance (SPR) to measure ***DNA*** hybridization at surfaces. SPR is a surface sensitive technique, which can be used to study hybridization in situ, and the use of colloidal metal tags provides excellent sensitivity. Angle-scanning SPR has been used to study oligonucleotide hybridization to surface confined probes, and work is underway to apply SPR imaging to study ***DNA*** hybridization in macro- and microarray formats.
RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 37 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:676892 CAPLUS
DN 135:237555
TI Integrated nucleic acid hybridization devices for improved kinetics, sensitivity and discrimination power
IN Hogan, Michael; Powdrill, Thomas; Iverson, Bonnie; Belosludtsev, Yuri Y.; Belosludtsev, Inna Y.
PA Genometrix Genomix, Inc., USA
SO PCT Int. Appl., 101 pp. CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1 PATENT NO. KIND DATE APPLICATION NO. DATE ---------- ---- -------- ---------- --------
PI WO 2001066687 A1 20010913 WO 2000-US23438 20000824 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
PRAI US 2000-522240 A1 20000309 US 2000-636268 A1 20000810
AB The invention provides devices and methods for enhanced and selective assocn. or binding between biol. materials, such as nucleic acids, e.g., ***DNA*** or ***RNA*** , or polypeptides, and an immobilized oligonucleotide probe. In one embodiment, the invention provides an assocn. device comprising a plurality of nucleic acid probes or polypeptide probes or a combination thereof linked to a solid substrate. The solid substrate comprises a substrate surface comprising an external substrate surface and a plurality of internal pores, wherein the pores comprise a proximal end opening to the external surface to allow passage of fluid into a pore, and wherein the pore surfaces comprise an assocn. surface. The assocn. surface comprises a charged surface comprising net pos. (cationic) charge d. under conditions comprising a pH lower than the pI of the assocn. surface. Methods for making these hybridization/assocn. devices are also provided. Covalent and noncovalent probe immobilization methodologies are employed for surface hybridization modeling studies. Incorporating low ionic strength, low pH buffers (together with a net cationic charge d. on the device surface) as hybridization conditions provides significant increases in the kinetics, sensitivity, and discrimination power of nucleic acid-based and polypeptide-based biosensors and related hybridization techniques. For example, the devices and methods of the invention can be used in nucleic acid-based diagnostic tests. The devices and methods of the invention can be used,

e.g., for detecting the assocn. of a nucleic acid in a sample to a nucleic acid probe or purifying a nucleic acid from a sample.
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 38 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:638227 CAPLUS
TI Oligonucleotide-nanoparticle conjugates with multiple anchor groups
AU Li, Zhi; Jin, Rongchao; Mirkin, Chad A.; Letsinger, Robert L.
CS Chemistry Department and Center for Nanofabrication and Molecular Self-assembly, Northwestern University, Evanston, IL, 60208, USA
SO Abstracts of Papers, 222nd ACS National Meeting, Chicago, IL, United States, August 26-30, 2001 (2001), COLL-191 Publisher: American Chemical Society, Washington, D. C. CODEN: 69BUZP
DT Conference; Meeting Abstract
LA English
AB Conjugates of oligonucleotides and nanoparticles are gaining importance in both material science and biotechnol. as novel building blocks and sensitive diagnostic probes. Diagnostic applications of such conjugates in particular demand high stability in media contg. strong surface-binding agents, such as alkanethiols. Conventional alkanethiol-capped ***DNA*** -modified gold nanoparticles show considerable irreversible aggregation in the presence of competing thiols due to loss of ***DNA*** from the surface. Herein we present alternative oligonucleotide attachment strategies based on a cyclic steroid disulfide and branched tri-hexylthiol modification of the ***DNA*** terminus. These capping groups afford substantial enhancement of particle stability over single hexanethiol anchors. We will compare the stability, surface modification properties, and ***hybridization*** activity of gold ***nanoparticle*** probes with these novel surface modifications.

L6 ANSWER 39 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:621648 CAPLUS
DN 135:371949
TI Directed assembly of periodic materials from protein and oligonucleotide-modified nanoparticle building blocks
AU Park, So-Jung; Lazarides, Anne A.; Mirkin, Chad A.; Letsinger, Robert L.
CS Department of Chemistry and Center for Nanofabrication and Molecular Self Assembly, Northwestern University, Evanston, IL, 60208-3113, USA
SO Angewandte Chemie, International Edition (2001), 40(15), 2909-2912 CODEN: ACIEF5; ISSN: 1433-7851
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
AB ***DNA*** -directed assembly of ***nanoparticles*** was achieved by linking thio-alkyl-substituted oligodeoxynucleotide chains to gold ***nanoparticles*** or biotin-substituted oligodeoxynucleotides to streptavidin, and then ***hybridizing*** the two with a complimentary oligodeoxynucleotide linker. The thermal dissocn. of the aggregates showed features of both aggregate particle growth and ***DNA*** melting; one method of increasing the size of aggregates formed was to heat the mixt. to a few degrees below the m.p.

L6 ANSWER 40 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:610135 CAPLUS
DN 135:190978
TI Silver-Enhanced Colloidal Gold Electrochemical Stripping Detection of ***DNA*** Hybridization
AU Wang, Joseph; Polsky, Ronen; Xu, Danke
CS Department of Chemistry and Biochemistry, New Mexico State University, Las Cruces, NM, 88003, USA
SO Langmuir (2001), 17(19), 5739-5741 CODEN: LANGD5; ISSN: 0743-7463
PB American Chemical Society
DT Journal
LA English
AB We report on a novel method for detecting ***DNA*** ***hybridization*** , based on the pptn. of silver on gold ***nanoparticle*** tags and a subsequent electrochem. stripping detection of the dissolved silver. Such coupling of a ***nanoparticle*** -promoted silver pptn. with the remarkable sensitivity of stripping metal anal. offers a dramatic enhancement of the ***hybridization*** response. An efficient magnetic isolation of the duplex is used for discriminating against nonhybridized ***DNA*** , including an excess of mismatched oligonucleotides. The new silver-enhanced colloidal gold stripping detection strategy holds great promise for the detection of ***DNA*** hybridization and represents an attractive alternative to indirect optical affinity assays of nucleic acids and other biomols.
RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 41 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:578956 CAPLUS
DN 135:164328
TI Gold nanoparticle-based quantitative electrochemical detection of amplified human cytomegalovirus ***DNA*** using disposable microband electrodes
AU Authier, Laurent; Grossiord, Celine; Brossier, Pierre; Limoges, Benoit
CS Laboratoire de Microbiologie Medicale et Moleculaire Faculte de Medecine et de Pharmacie, Faculte de Medecine et de Pharmacie, Dijon, 21033, Fr.
SO Analytical Chemistry (2001), 73(18), 4450-4456 CODEN: ANCHAM; ISSN: 0003-2700
PB American Chemical Society
DT Journal
LA English
AB An electrochem. ***DNA*** detection method has been developed for the sensitive quantification of an amplified 406-base pair human cytomegalovirus ***DNA*** sequence (HCMV ***DNA***). The assay relies on (i) the ***hybridization*** of the single-stranded target HCMV ***DNA*** with an oligonucleotide-modified Au ***nanoparticle*** probe, (ii) followed by the release of the gold metal atoms anchored on the hybrids by oxidative metal dissoln., and (iii) the indirect detn. of the solubilized AuIII ions by anodic stripping voltammetry at a sandwich-type screen-printed microband electrode (SPMBE). Due to the enhancement of the AuIII mass transfer by nonlinear diffusion during the electrodeposition time, the SPMBE allows the sensitive detn. of AuIII in a small vol. of quiescent soln. The combination of the sensitive AuIII detn. at a SPMBE with the large no. of AuIII released from each gold nanoparticle probe allows detection of as low as 5 pM amplified HCMV ***DNA*** fragment.
RE.CNT 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 42 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2001:530445 CAPLUS
DN 135:207798
TI ***DNA*** -modified core-shell Ag/Au nanoparticles
AU Cao, YunWei; Jin, Rongchao; Mirkin, Chad A.
CS Department of Chemistry and Center for Nanofabrication and Molecular Self-assembly, Northwestern University, Evanston, IL, 60208, USA
SO Journal of the American Chemical Society (2001), 123(32), 7961-7962 CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society
DT Journal
LA English
AB In this article the authors report a low temp. method for generating core-shell particles consisting of a core of Ag and a monolayer shell of Au that can be readily functionalized with oligonucleotides using the proven preparatory methods for pure gold particle oligonucleotide conjugates. Moreover, the authors show how this novel nanoparticle compn. can be used to a access a colorimetric detections system distinct from pure gold systems.
RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 43 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:424278 CAPLUS
DN 135:233111
TI Scanning electron microscope observation of heterogeneous three-dimensional nanoparticle arrays using ***DNA***
AU Takahagi, Takayuki; Tsutsui, Gen; Huang, Shujuan; Sakaue, Hiroyuki; Shingubara, Shoso
CS Graduate School of Advanced Sciences of Matter, Hiroshima University, Higashi-Hiroshima, 739-8526, Japan
SO Japanese Journal of Applied Physics, Part 2: Letters (2001), 40(5B), L521-L523 CODEN: JAPLD8; ISSN: 0021-4922
PB Japan Society of Applied Physics
DT Journal
LA English
AB ***DNA*** oligonucleotides are considered to be as a useful tool for fabricating complex structures on a nanometer scale because of their selective reactivity. Herein, the authors describe a fabrication technique for heterogeneous three-dimensional nanoparticle arrays composed of Au nanoparticles of two different sizes linked by thiol-synthesized ***DNA*** oligonucleotides. Each size of the Au nanoparticles was encapsulated by complementary ***DNA*** oligonucleotides. ***DNA*** hybridization occurs upon their mixing, resulting in the construction of a three-dimensional nanostructure. Scanning electron microscope (SEM) observation and UV spectroscopy were performed to confirm the construction of the nanostructure. This fabrication technique will be crucial for the advancement of nanotechnol. in the next ten years.
RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 44 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:320365 CAPLUS
DN 134:321368
TI Two-Color Labeling of Oligonucleotide Arrays via Size-Selective Scattering of Nanoparticle Probes
AU Taton, T. Andrew; Lu, Gang; Mirkin, Chad A.
CS Department of Chemistry and Center for Nanofabrication and Molecular Self-Assembly, Northwestern University, Evanston, IL, 60208, USA
SO Journal of the American Chemical Society (2001), 123(21), 5164-5165 CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society
DT Journal
LA English
AB Imaging the light scattered by oligonucleotide-functionalized, 50 and 100 nm diam. gold ***nanoparticle*** probes ***hybridized*** to targets captured by a ***DNA*** array is reported. The method can be used to identify two target sequences in one soln. It is also shown that with the scanometric array method, the unique melting properties of nanometric probes lead to enhanced sequence selectivity when ***DNA*** arrays are imaged by scattering light from bound nanoparticles.
RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 45 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:228137 CAPLUS
DN 135:327869
TI A three-dimensional heterogeneous ***DNA*** sensing surface formed by attaching oligodeoxynucleotide-capped gold nanoparticles onto a gold-coated quartz crystal
AU Han, Shubo; Lin, Jianqiao; Satjapipat, Munlika; Baca, Alfred J.; Zhou, Feimeng
CS Department of Chemistry and Biochemistry, California State University, Los Angeles, Los Angeles, CA, 90032, USA
SO Chemical Communications (Cambridge, United Kingdom) (2001), (7), 609-610 CODEN: CHCOFS; ISSN: 1359-7345
PB Royal Society of Chemistry
DT Journal
LA English
AB Exposing oligodeoxynucleotide (ODN)-capped Au nanoparticles to a quartz crystal under shear oscillation resulted in the formation of a uniform monolayer contg. these ***nanoparticles*** or multilayers with islands of the ODN-capped ***nanoparticles*** , which, in turn, improved the extent of ***DNA*** ***hybridization*** .
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 46 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:199683 CAPLUS
TI Nanoparticle-based bioanalysis
AU Keating, Christine D.; He, Lin; Nicewarner, Sheila; Reiss, Brian D.; Pena, Dave; Goodrich, Glenn P.; Natan, Michael J.; Mallouk, Thomas E.
CS Department of Chemistry, Pennsylvania State University, University Park, PA, 16802, USA
SO Abstracts of Papers, 221st ACS National Meeting, San Diego, CA, United States, April 1-5, 2001 (2001) COLL-425 CODEN: 69FZD4
PB American Chemical Society
DT Journal; Meeting Abstract
LA English
AB Two applications of metal nanoparticles in biosensing are described. In the first, ***DNA*** hybridization at an Au surface is detected via colloidal Au amplified surface plasmon resonance (SPR). Use of 12-nm Au tags leads to a greater than 10-fold increase in angle shift, corresponding to a more than 1000-fold improvement in sensitivity for the target oligonucleotide as compared to the unamplified binding event. The extremely large angle shifts obsd. in particle-amplified SPR make it possible to conduct SPR imaging expts. on ***DNA***

macroarrays with picomolar detection limits. A second application of metal ***nanoparticles*** employs striped multimetal rod-shaped particles as identifiable supports for ***hybridization*** assays. The striping pattern can be read via reflectivity in an optical microscope, and is used to identify the chem. on the surface of the rod. Because of the large no. of striping patterns that can be prepd., these nanoscale "barcodes" are attractive for multiplexed bioassays.

L6 ANSWER 47 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:197149 CAPLUS
TI Enhanced atomic force microscopy imaging of ***DNA*** ***hybridization*** by utilizing ***DNA*** -capped gold ***nanoparticles***
AU Han, Shubo; Lin, Jianqiao; Zhou, Feimeng
CS Chemistry and Biochemistry, California State University, Los Angeles, Los Angeles, CA, 90032, USA
SO Abstracts of Papers, 221st ACS National Meeting, San Diego, CA, United States, April 1-5, 2001 (2001) ANYL-063 CODEN: 69FZD4
PB American Chemical Society
DT Journal; Meeting Abstract
LA English
AB A novel assay for selective detn. of polynucleotides using AFM together with the formation of the probe-target-***DNA*** /gold nanoparticle sandwich structure at gold surface is described. A 17mer probe was attached to the surface for subsequent hybridization with a polynucleotide target. The hybridization efficiency can only be estd. to be about 1.1% since certain surface features could not be resolved. The 30mer-capped gold nanoparticles, not only provides another dimension of selectivity, but also reoriented the previously formed probe-target hybrid in such a way that the strands of the target become tethered with respect to the surface. Due to the improvement in resolving the hybridized target mols., an accurate detn. of the hybridization efficiency (16.5%) was achieved. Quartz crystal microbalance (QCM) was also employed to quantify the hybridization and the results are compared with the findings of AFM.

L6 ANSWER 48 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:100554 CAPLUS
DN 134:262964
TI Site-selective immobilization of gold nanoparticles functionalized with ***DNA*** oligomers
AU Niemeyer, C. M.; Ceyhan, B.; Gao, S.; Chi, L.; Peschel, S.; Simon, U.
CS FB2 - UFT Biotechnologie und Molekulare Genetik, Universitat Bremen, Bremen, 28359, Germany
SO Colloid and Polymer Science (2001), 279(1), 68-72 CODEN: CPMSB6; ISSN: 0303-402X
PB Springer-Verlag
DT Journal
LA English
AB The organization of metal and semiconductor nanoparticles to form micro- and nanostructured assemblies is currently of tremendous interest. This communication reports on the utilization of ***DNA*** mols. as positioning elements for generating microstructured surface architecture from gold nanoparticles. Citrate-passivated 40 nm gold colloids were modified by chemisorptive coupling with a 5'-thiol-derivatized ***DNA*** oligomer. The nucleic acid was used as a mol. handle for the specific immobilization on solid supports, previously functionalized with capture ***DNA*** oligomers, complementary to the nanoparticle-bound ***DNA*** . As a consequence of the enormous specificity of nucleic acid ***hybridization*** , the ***DNA*** -directed immobilization (DDI) allows, to site-specifically target the hybrid ***nanoparticles*** to microlocations which contain the complementary oligomers. The site-selectivity of the surface adsorption is demonstrated by immobilizing the gold colloids on a ***DNA*** microarray on a glass cover slide. Moreover, scanning force microscopy (SFM) anal., used to characterize the intermediate steps of the DDI on a gold substrate, provided initial insights into the specificity and efficiency of this technique. The application of the DDI to fabricate complex colloidal micro- and nanostructures is anticipated.
RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 49 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:855382 CAPLUS
DN 134:173566
TI Oligonucleotide-Capped Gold Nanoparticles for Improved Atomic Force Microscopic Imaging and Enhanced Selectivity in Polynucleotide Detection
AU Han, Shubo; Lin, Jianqiao; Zhou, Feimeng; Vellanoweth, Robert Luis
CS Department of Chemistry and Biochemistry, California State University at Los Angeles, Los Angeles, CA, 90032, USA
SO Biochemical and Biophysical Research Communications (2000), 279, 265-269 CODEN: BBRCA9; ISSN: 0006-291X
PB Academic Press
DT Journal
LA English
AB A novel assay for selective detn. of polynucleotides using at. force microscopy in conjunction with the formation of the probe/target/ ***DNA*** -gold nanoparticle sandwich structure at a gold surface is described. A 17-mer probe was attached to the surface for subsequent hybridization with a polynucleotide target. Due to the flat orientation of the probe-target hybrid with respect to the surface and the spatial obstruction of the unhybridized probes near the hybrids, the AFM images are not clear. The hybridization efficiency was estd. to be about 1.1% since certain surface features could not be resolved. The utilization of 30-mer-capped gold nanoparticles not only provides another dimension of selectivity, but also reorients the previously formed probe-target hybrid in such a way that the strands of the target become tethered with respect to the surface. This reorientation improves the resoln. in imaging the hybridized target mols. and provides an accurate detn. of the hybridization efficiency (16%). (c) 2000 Academic Press.
RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 50 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:794503 CAPLUS
TI Kinetic control of oligonucleotide hybridization in monolayer nucleic acid films measured by in situ quantitative surface plasmon resonance spectroscopy.
AU Georgiadis, Rosina M.; Peterson, Alexander W.; Heaton, Richard H.
CS Department of Chemistry, Boston University, Boston, MA, 02215, USA
SO Abstracts of Papers, 220th ACS National Meeting, Washington, DC, United States, August 20-24, 2000 (2000) COLL-311 CODEN: 69FZC3
PB American Chemical Society
DT Journal; Meeting Abstract
LA English

AB Few exptl. studies have measured the rates of oligonucleotide ***hybridization*** at surfaces despite the importance of these measurements in a range of areas including research on ***DNA*** -directed assembly of ***nanoparticles*** , ***DNA*** chip development and other biosensor applications. We present quant. SPR spectroscopy measurements of the kinetics of hybridization at surface immobilized monolayer films for a variety of oligonucleotide duplexes of varying length and base-pair sequence. We find that the rate of hybridization depends strongly not only on the degree of mismatch in the base-pair sequence but also on the position at which the duplex forms along the immobilized strand. The kinetics of surface duplex formation are much slower than rates which have been measured in homogenous aq. soln. Melting curves for surface immobilized duplex dehybridization, measured by temp. dependent SPR spectroscopy are compared with results in homogenous soln. as measured by CD spectroscopy. Our results are consistent with kinetic control of the rate of duplex formation in immobilized monolayer nucleic acid films.

L6 ANSWER 51 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:792856 CAPLUS
DN 134:97279
TI Chip-Based Optical Detection of ***DNA*** Hybridization by Means of Nanobead Labeling
AU Reichert, Joerg; Csaki, Andrea; Koehler, J. Michael; Fritzsche, Wolfgang
CS Institute of Physical High Technology, Jena, D-07702, Germany
SO Analytical Chemistry (2000), 72(24), 6025-6029 CODEN: ANCHAM; ISSN: 0003-2700
PB American Chemical Society
DT Journal
LA English
AB A new scheme for the detection of mol. interactions based on optical readout of nanoparticle labels has been developed. Capture ***DNA*** probes were arrayed on a glass chip and incubated with nanoparticle-labeled target ***DNA*** probes, contg. a complementary sequence. Binding events were monitored by optical means, using reflected and transmitted light for the detection of surface-bound nanoparticles. Control expts. exclude significant influence of nonspecific binding on the obsd. contrast. Scanning force microscopy revealed the distribution of nanoparticles on the chip surface.
RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 52 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:683718 CAPLUS
DN 135:895
TI Facile colorimetric detection of polynucleotides based on gold nanoparticle probes
AU Storhoff, James J.; Elghanian, Robert; Mucic, Robert C.; Mirkin, Chad A.; Letsinger, Robert L.
CS Department of Chemistry, Northwestern University, Evanston, IL, 60208, USA
SO Proceedings of the ERDEC Scientific Conference on Chemical and Biological Defense Research, Aberdeen Proving Ground, MD, United States, Nov. 17-20, 1998 (1999), Meeting Date 1998, 221-226. Editor(s): Berg, Dorothy A. Publisher: National Technical Information Service, Springfield, Va. CODEN: 69AJH3
DT Conference
LA English
AB Novel probes for polynucleotide detection can be prepd. by functionalizing gold nanoparticles with alkylthiol-modified oligonucleotides. These probes readily ***hybridize*** to complementary polynucleotides in soln. leading to the formation of a polymeric network of gold ***nanoparticles*** . The particles serve as reporter groups, triggering a red to pinkish/purple color change upon hybridization. By spotting the test solns. onto a solid-phase support, target polynucleotides can be detected colorimetrically and differentiated from targets contg. single base imperfections.
RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 53 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:624265 CAPLUS
DN 134:111002
TI Colloidal Au-enhanced surface plasmon resonance for ultrasensitive detection of ***DNA*** hybridization
AU He, Lin; Musick, Michael D.; Nicewarner, Sheila R.; Salinas, Frank G.; Benkovic, Stephen J.; Natan, Michael J.; Keating, Christine D.
CS Department of Chemistry, The Pennsylvania State University, University Park, PA, 16802, USA
SO Journal of the American Chemical Society (2000), 122(38), 9071-9077 CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society
DT Journal
LA English
AB A new approach to ultrasensitive detection of ***DNA*** ***hybridization*** based on ***nanoparticle*** -amplified surface plasmon resonance (SPR) is described. Use of the Au nanoparticle tags leads to a greater than 10-fold increase in angle shift, corresponding to a more than 1000-fold improvement in sensitivity for the target oligonucleotide as compared to the unamplified binding event. This enhanced shift in SPR reflectivity is a combined result of greatly increased surface mass, high dielec. const. of Au particles, and electromagnetic coupling between Au nanoparticles and the Au film. ***DNA*** melting and digestion expts. further supported the feasibility of this approach in ***DNA*** hybridization studies. The extremely large angle shifts obsd. in particle-amplified SPR make it possible to conduct SPR imaging expts. on ***DNA*** arrays. In the present work, macroscopic 4 .times. 4 arrays were employed, and a .apprx.10 pM limit of quantitation was achieved for 24-mer oligonucleotides (surface d. .ltoreq.8 .times. 108 mols./cm2). Even without further optimization, the sensitivity of this technique begins to approach that of traditional fluorescence-based methods for ***DNA*** hybridization. These results illustrate the potential of particle-amplified SPR for array-based ***DNA*** anal. and ultrasensitive detection of oligonucleotides.
RE.CNT 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 54 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:403224 CAPLUS
DN 133:219622
TI The ***DNA*** -Mediated Formation of Supramolecular Mono- and Multilayered Nanoparticle Structures
AU Taton, T. Andrew; Mucic, Robert C.; Mirkin, Chad A.; Letsinger, Robert L.
CS Department of Chemistry and Center for Nanofabrication and Molecular Self-Assembly, Northwestern University, Evanston, IL, 60208, USA

SO Journal of the American Chemical Society (2000), 122(26), 6305-6306 CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society
DT Journal
LA English
AB Herein, we report a new, noncovalent ***DNA*** -based strategy for controlling the stepwise growth of layered nanoparticle structures off of glass surfaces. This is the first reported methodol. for forming layered ***nanoparticle*** -based materials from ***DNA*** and designed ***hybridization*** events. The strategy should be quite general and extendable to other nanoparticle sizes and compns. The unexpected sharp melting properties of single particles hybridized to the glass support point to a possible route to developing chip-based detection formats for ***DNA*** with selectivities that are better than those of conventional probe systems.
RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 55 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:350693 CAPLUS
DN 134:37640
TI Amplified microgravimetric gene sensor using Au nanoparticle modified oligonucleotides
AU Zhou, Xi Chun; O'Shea, Sean J.; Li, Sam Fong Yau
CS Institute of Materials Research and Engineering, 117602, Singapore
SO Chemical Communications (Cambridge) (2000), (11), 953-954 CODEN: CHCOFS; ISSN: 1359-7345
PB Royal Society of Chemistry
DT Journal
LA English
AB A novel microgravimetric gene sensing system has been developed using an oligonucleotide anchored on the gold electrode of a quartz crystal microbalance and an Au nanoparticle modified oligonucleotide, both of which formed a sandwich-type ternary complex with the target ***DNA*** to give an amplified frequency response.
RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 56 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:345850 CAPLUS
DN 133:147119
TI A gold nanoparticle/latex microsphere-based colorimetric oligonucleotide detection method
AU Reynolds, Robert A., III; Mirkin, Chad A.; Letsinger, Robert L.
CS Department of Chemistry and Center for Nanofabrication and Molecular Self-Assembly, Northwestern University, Evanston, IL, 60208, USA
SO Pure and Applied Chemistry (2000), 72(1-2), 229-235 CODEN: PACHAS; ISSN: 0033-4545
PB International Union of Pure and Applied Chemistry
DT Journal
LA English
AB An exceptionally simple and effective ***DNA*** detection methodol. based on latex microsphere and gold nanoparticle probes has been developed. The latex and gold particle probes, which were functionalized with sep. oligonucleotide sequences, undergo hybridization in the presence of target strands that are complementary to both of the probes. Duplex formation thus results in linking of gold nanoparticles to the latex microspheres and a corresponding white-to-red color change, which, because of the particularly large extinction coeff. of the gold nanoparticles, is clearly visible to the naked eye. Background signal caused by unbound gold nanoparticles is significantly reduced by filtering the soln. contg. the sample and probes through a size-selective cellulose acetate membrane. The unbound gold probes move freely through this membrane while the larger latex particles are trapped. Therefore, if the latex and gold nanoparticles are joined together via the target oligonucleotides, the membrane appears red, indicating a pos. test result. If no hybridization takes place, the membrane appears white, indicating a neg. result. The lower detection limits for this system are 500 pM for a 24 base single-stranded target and 2.5 nM for a duplex target oligonucleotide.
RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 57 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:335606 CAPLUS
DN 133:2215
TI Signal amplification by crosslinking of ***nanoparticles*** by ***hybridization*** of bound nucleic acids
IN Barbera-Guillem, Emilio; Nelson, M. Bud; Castro, Stephanie
PA Biocrystal Limited, USA
SO PCT Int. Appl., 72 pp. CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 12 PATENT NO. KIND DATE APPLICATION NO. DATE
PI WO 2000028088 A1 20000518 WO 1999-US26612 19991110 W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
US 6261779 B1 20010717 US 1999-437076 19991109
WO 2000028089 A1 20000518 WO 1999-US26616 19991110 W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
EP 1157133 A1 20011128 EP 1999-960265 19991110 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO
PRAI US 1998-107828P P 19981110 US 1999-437076 A 19991109 US 1998-109626P P 19981124 WO 1999-US26612 W 19991110
AB A method of amplifying a signal by crosslinking of water-sol. nanocrystals using nucleic acids immobilized on the particles is described. An anal. probe, e.g. an antibody, attached to one type of particle carrying several mols. of one nucleic acid sequence is used to bind the analyte. This is then incubated with a second type of particle carrying a probe complementary to the nucleic acid on the first type of particle. By alternating incubations with the two types of particles, large branching

complexes are built up and easily detected, e.g by fluorometry using a nucleic acid binding dye, or by use of fluorescent nanocrystals (quantum dots). Methods of prepg. quantum dots to stabilize them against oxidn. by capping unused reactive groups on the surface are described.
RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 58 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:333894 CAPLUS
DN 133:130412
TI Molecular beacon biosensors for ***DNA*** / ***RNA*** analysis
AU Fang, Xiaohong; Schuster, Sheldon; Liu, Xiaojing; Correll, Tiffany; Zhang, Peng; Tapec, Ruby; Santra, Swadeshmukul; Qhobosheanne, Monde; Lou, Jane Hua; Tan, Weihong
CS UF Brain Institute, Dep. Chem., Univ. Florida, Gainesville, FL, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (2000), 3926(Advances in Nucleic Acid and Protein Analyses, Manipulation, and Sequencing), 2-8 CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB We have developed a variety of novel ***DNA*** biosensors using a new class of oligonucleotide probe, mol. beacon (MB). MB has the fluorescence signal transduction mechanism built within the mols. It can report the presence of specific nucleic acids with high sensitivity and excellent selectivity. Biotinylated MBs have been designed and synthesized for immobilization onto silica surface through avidin-biotin binding. The effect of the avidin-biotin bridge on the MB hybridization has been studied. Our result shows that using streptavidin has less effect than using avidin in MB hybridization. Two kinds of fiber optical ***DNA*** sensors have been prepd. and characterized: a fiber optic evanescent wave sensor and a submicrometer optical fiber sensor. The sensors are rapid,stable, highly selective, reproducible and regenerable. They have been applied to detect specific ***DNA*** and ***mRNA*** sequences and to the study of the ***DNA*** hybridization kinetics. Silica nanoparticles have also been used for MB immobilization in order to prep. a large quantity of nanometer sized ***DNA*** / ***RNA*** biosensors.
RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 59 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:331439 CAPLUS
TI Fluorescence-based method for the determination of surface coverage and ***hybridization*** efficiency of thiol-capped oligonucleotides bound to gold ***nanoparticles*** .
AU Demers, Linette M.; Mucic, Robert C.; Reynolds, Robert A., III; Mirkin, Chad A.; Letsinger, Robert L.
CS Department of Chemistry and Center for Nanofabrication and Molecular Self-assembly, Northwestern University, Evanston, IL, 60208, USA
SO Book of Abstracts, 219th ACS National Meeting, San Francisco, CA, March 26-30, 2000 (2000), INOR-649 Publisher: American Chemical Society, Washington, D. C. CODEN: 69CLAC
DT Conference; Meeting Abstract
LA English
AB Recently, our group reported a new ***DNA*** detection scheme based upon the ***hybridization*** of target ***DNA*** to gold ***nanoparticle*** probes with surface immobilized alkylthiol-capped oligonucleotides. The basis for this detection method is a colorimetric change assocd. with particle aggregation caused by oligonucleotide hybridization events at the surface. Two factors that dictate the magnitude of the observable optical changes are: 1) the extent of surface modification with the oligonucleotides, and 2) the ability of complementary oligonucleotides to access surface-bound oligonucleotides. In this work we describe a fluorescence-based method for detg. the surface coverage of the ***nanoparticle*** -bound oligonucleotides, and the efficiency of ***hybridization*** with complementary oligonucleotides. Importantly, this method has enabled us to investigate parameters such as electrolyte concn., oligonucleotide sequence and length, and the role of diluent mols., which influence the surface coverage and resulting ***hybridization*** properties of oligonucleotide-functionalized ***nanoparticles*** . In addn., we show that variation of the loading conditions affords control over the ***hybridization*** efficiency of the oligonucleotide-modified ***nanoparticles*** .

L6 ANSWER 60 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1999:703246 CAPLUS
DN 132:31330
TI Chemistry of oligonucleotide-gold nanoparticle conjugates
AU Letsinger, Robert L.; Mirkin, Chad A.; Elghanian, Robert; Mucic, Robert C.; Storhoff, James J.
CS Department of Chemistry, Northwestern University, Evanston, IL, 60208, USA
SO Phosphorus, Sulfur and Silicon and the Related Elements (1999), 144-146, 359-362 CODEN: PSSLEC; ISSN: 1042-6507
PB Gordon & Breach Science Publishers
DT Journal; General Review
LA English
AB A review, with 10 refs. Conjugates prepd. by immobilizing thiol-terminated oligonucleotides onto gold nanoparticles form stable colloidal solns. in aq. media. The oligonucleotides can serve as linkers to organize the gold particles reversibly into three dimensional assemblies, and the gold particles can function as colorimetric reporters for hybridization of the bound oligomers with target oligonucleotides in soln.
RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 61 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1998:150275 CAPLUS
DN 128:226756
TI One-Pot Colorimetric Differentiation of Polynucleotides with Single Base Imperfections Using Gold Nanoparticle Probes
AU Storhoff, James J.; Elghanian, Robert; Mucic, Robert C.; Mirkin, Chad A.; Letsinger, Robert L.
CS Department of Chemistry, Northwestern University, Evanston, IL, 60208, USA
SO Journal of the American Chemical Society (1998), 120(9), 1959-1964 CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society
DT Journal
LA English
AB Selective colorimetric polynucleotide detection based on Au nanoparticle probes which align in a "tail-to-tail" fashion onto a target polynucleotide is described. In this new nanoparticle-based detection system, Au particles (.apprx.13 nm diam.), which are capped with 3'- and 5'-(alkanethiol)oligonucleotides, are used to complex a 24-base polynucleotide target. ***Hybridization*** of the target with the probes results in the

formation of an extended polymeric Au ***nanoparticle*** /polynucleotide aggregate, which triggers a red to purple color change in soln. The color change is due to a red shift in the surface plasmon resonance of the Au nanoparticles. The aggregates exhibit characteristic, exceptionally sharp "melting transitions" (monitored at 260 or 700 nm), which allows one to distinguish target sequences that contain one base end mismatches, deletions, or an insertion from the fully complementary target. When test solns. are spotted onto a C18 reverse-phase thin-layer chromatog. plate, color differentiation is enhanced and a permanent record of the test is obtained, thereby providing a better method for distinguishing the aforementioned target sequences. Significantly, one-pot colorimetric detection of the target in the presence of four strands with single base imperfections can be accomplished with this new probe system.
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 62 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:458356 CAPLUS
DN 127:140241
TI Modification and immobilization of enzymes and other biological macromolecules by polymer materials and their biomedical applications
AU Ma, Jian-Biao
CS State Key Laboratory Functional Polymer Materials Adsorption Separation, Institute Polymer Chemistry, Nankai University, Tianjin, 300071, Peop. Rep. China
SO Gaodeng Xuexiao Huaxue Xuebao (1997), 18(7), 1226-1235
CODEN: KTHPDM; ISSN: 0251-0790
PB Gaodeng Jiaoyu Chubanshe
DT Journal; General Review
LA Chinese
AB A review with 30 refs. Recent progress in biomedical polymers, chem. modification of L-asparaginase by natural and synthetic polymers, synthesis of dextrin magnetic ***nanoparticles*** as carriers during the immobilization of enzyme and antibodies, polymeric latexes useful in the detection of ***DNA*** ***hybridization*** , enzyme immobilization on porous polymeric beads, immobilization of enzymes in the conducting polymer membrane and fabrication of bioelectrodes, as well as biomimetic polymers of mol. recognition.

L6 ANSWER 63 OF 63 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1996:349849 CAPLUS
DN 125:41765
TI Adsorption of antisense oligonucleotides onto nanoparticles for therapeutic use.
IN Helene, Claude; Saison, Behmoaras Ester
PA Centre National De La Recherche Scientifique Cnrs, Fr.
SO Fr. Demande, 23 pp. CODEN: FRXXBL
DT Patent
LA French
FAN.CNT 1 PATENT NO. KIND DATE APPLICATION NO. DATE ---------- ---- -------- ---------- -------
PI FR 2724935 A1 19960329 FR 1994-11512 19940927 FR 2724935 B1 19961220
PRAI FR 1994-11512 19940927
AB Methods for adsorption or encapsulation of antisense oligonucleotides onto nanoparticles for use in the treatment of tumors or other diseases assocd. with disruption of patterns of regulation of gene expression are described. Adsorption onto ***nanoparticles*** increases the resistance of the oligonucleotides to nucleases and improved cellular uptake and ***hybridization*** to the target sequence. Specifically, antisense oligonucleotides directed against mutants of the ras oncogene are described. Adsorbed or immobilized oligonucleotides are up to 100-fold more effective than the free oligonucleotide. The nanoparticles have a diam. of 50-500 nm and include a hydrophobic cationic polymer for efficient binding of the oligonucleotides. Nude mice inoculated with HBL100ras cells showed strong inhibition of tumor growth when treated with nanoparticles contg. the appropriate antisense ***DNA*** .

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